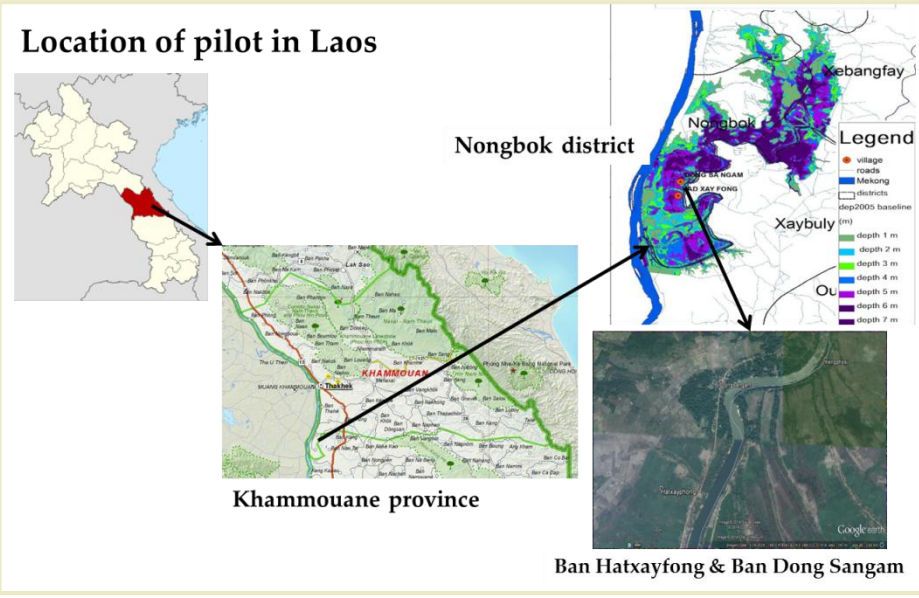


Project Fact Sheet: Lao PDR

Climate-Sensitive Flood Risk Mitigation in Khammouane Province

Background on Nongbok District

- Located on Lower Xe Bang Fai floodplains near the confluence of the Xe Bang Fai and Mekong Rivers
- Highest discharges occur between July and October, with floods reaching their peak in August and September
- Flow of the Xe Bang Fai river is affected by the Nam Theun II hydropower dam, which was constructed in 2010



Project Overview

Time frame: August 2014-February 2016

Budget: approx. 100,000 Euro

Location: Ban Hatsayfong and Ban DongsaNgam, Nongbok District, Khammouane Province

Impact: 974 direct beneficiaries from 15 drinking water supply structures constructed, 13 boats provided, and 2 public announcement systems provided.

Partners: Lao Consulting Group (LCG), Green Gold Consulting Sole Co. LTD

Relevant information on target villages	Ban Hatsayfong	Ban Dongsangan
Village size	97 households (499 people)	106 households (475 people)
% of labor force involved in agriculture (including livestock)	76%	69%
Other economic activities	Hired labour 14.3%, Fisheries: 1.6%, Construction: 2.2%, Government 2.5%	Hired labour 18.7%, Fisheries: 2.6%, Construction: 2.5%, Government: 2.5%
Drinking water supply	80% of households use groundwater wells with electric pumps	80% of households use groundwater wells with electric pumps
Access to sanitation	All households have own toilet, no wastewater collection or treatment	All households have own toilet, no wastewater collection or treatment
Access to electricity	100% of population connected to national electricity grid	100% of population connected to national electricity grid

Results of vulnerability assessment

- **Baseline flood behavior:** Based on the results of the field survey, the 2011 flood had an average depth of 1-1.5 m in Ban Hatsayfong and 0.7-1.5m in Ban Dongsangam. In paddy field, depth was 3-4 m and 2-3 m respectively with inundation duration of over 2 months. The 2011 flood has an estimated return period of 25 years.
- **Climate change-induced flood behavior:** The results of the analysis show that by 2030, baseline (2011) flood depth will increase by 0.6- 1 m and will be three times more frequent under climate change conditions.
- **Economic vulnerability:** Average annual flood damage (AAD) for Ban Hatsayfong is $750 USD per household and $70,000 USD for the village. AAD for Ban Dongsangam is $850 USD per household and $88,000 USD for the village.
- **Economic vulnerability increases due to climate change:** Estimated AAD under climate change conditions in Ban Hatsayfong increases by $170 USD per household and $16,000 USD for the village (23% increase). For Ban Dongsangam AAD increases by $180 USD per household and $20,000 USD for the village (23% increase). This amount serves as a benchmark when considering investment in climate change adaptation measures.
- Damage to infrastructure and the agricultural sector (including livestock), lack of access to drinking water (in 2011 flood, crest level of household water wells was submerged) and lack of transport to access markets and public services are some of the greatest challenges for villagers during flood season.

Suggested adaptation measures

Based on an assessment of the focus region's exposure to floods, sensitivity, and adaptive capacity, over 50 flood risk mitigation measures were identified as ways to help the target villages reduce their vulnerability to flood risk. The following is a sample of some of these measures:

1. Raise crest level of drinking water wells to protect water quality during flood times.
2. Protect rice harvest by changing to 'floating rice'.
3. Flood proofing electrical outlets in domestic buildings.
4. Better sanitation through provision of floating toilets.
5. Provision of boats to provide transport during floods.
6. Strengthen dikes around existing domestic fishponds.
7. Take gender-conscious steps to reduce the impact of floods on women's workload.

Implemented adaptation measures

After a series of consultations with relevant stakeholders, the following measures were selected for implementation based on their potential for upscaling, technical feasibility, financial feasibility, gender sensitivity, willingness of communities, and sustainability. These measures were implemented between November 2015 and March 2016.

Objective 1: Improve accessibility (transportation) for villagers during flood events

1. Provided long boats with motors and safety equipment (7 for Dongsangam and 6 for Hatsayfong)

Objective 2: Improve access to fresh water during floods

2. New water supply tanks and filters have been installed on raised structures (8 in Dongsangam and 7 in Hatsayfong)
3. Drilled 3 new boreholes in Hatsayfong
4. Provided training for villagers on water and sanitation during floods and operations and maintenance of new water supply infrastructure

Objective 3: Improve capacity of villagers and leaders for flood early warning and communication

5. Provided public announcement system equipment for the announcement of early flood warnings.